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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,463	08/15/2003	Richard A. Gottscho	LAM1P141D1	2171
22434	7590	08/23/2005	EXAMINER	
BEYER WEAVER & THOMAS LLP			TUROCY, DAVID P	
P.O. BOX 70250			ART UNIT	
OAKLAND, CA 94612-0250			PAPER NUMBER	
			1762	
DATE MAILED: 08/23/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/642,463

Applicant(s)

GOTTSCHO ET AL.

Examiner

David Turocy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 11-20 is/are pending in the application.
- 4a) Of the above claim(s) 1 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-9 and 11-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The applicant's amendments, filed 6/29/2005, have been fully considered and reviewed by the examiner. The examiner notes the cancellation of claim 10. Claims 1-9 and 11-20 remain pending, with claim 1 withdrawn pursuant a restriction requirement.

Response to Arguments

2. The examiner notes the showing of common ownership of US Patent Publication 20003/0155079, which qualifies only under 35 USC 102(e), and the instant application to Lam Research Corporation. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of US Patent 6009830 by Li et al.

In light of the amendment to the claims to include the limitation of plasma forming components, the examiner has withdrawn the 35 USC 103(a) rejection to claims 2-9 over US Patent 4852593 to Daugherty.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 2-9, 12-17, and 19 rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6009830 by Li et al., hereafter Li.

Li discloses a method for processing a work piece with a gaseous plasma-forming component from a single component source comprising providing a work piece in a process chamber with two zones, an outer periphery zone and a central zone (Column 3, lines 1-5). Li discloses outputting the components to the second (periphery) zone without outputting the component to the first (central) zone (Column 5, lines 45-48). Li discloses providing various components to the periphery zone and central zone, including a second plasma-forming component from a second source (Column 6, lines 14-16). Li discloses providing an electric field in the plasma chamber (Figure 1, column 3, lines 26-28).

Li does not disclose outputting the component into the first process zone without outputting into the second processing zone and switching between the two to effect the concentration of the component.

However, Li discloses, at column 6, lines 42-57, the desire to control the balance of species distribution around the chamber among ions, radicals, and by products by controlling the flow rate into the zones of the chamber. In addition Li discloses providing any gas combination to be supplied into either zone by controlling mass flow rate and valves (Column 5, lines 10-18). It would have been obvious to control the amount of species distribution in the chamber by controlling the flow rates of the gases to each region, including not flowing the components, by alternatively switching the gas flow rate between no flow and flow between the different regions would have reasonably been expected to provide desired control of distribution.

As to controlling ratio of gas components to each zone and the timing for providing each component, these factors would clearly affect the amount of distribution of ions and radicals produced as these affect the amount of gas present for the production of such ions and radicals, therefore it would have been obvious to control these facts to control the distribution.

6. Claims 11 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li in view of US Patent 6113731 by Shan et al., hereafter Shan

Li teaches all the limitations of these claims as discussed above in the 35 USC 103(a) rejection above and discloses the desire to control the distribution of ions and

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radicals throughout the process chamber but Li fails to disclose providing controlling energy in the first and second zones.

However, Shan discloses a plasma chamber including controlling the energy throughout the process will result in control of the ion distribution and increase spatial uniformity, thereby reducing the risk of damage to the substrate.

Therefore it would have been obvious to one of ordinary skill in the art to modify Li to selectively control the energy within the plasma chamber as taught by Shan with the reasonable expectation of improving ion distribution throughout the process chamber and reap the benefits of reducing the damage to the substrate during processing.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Turocy whose telephone number is (571) 272-2940. The examiner can normally be reached on Monday-Friday 8:30-6:00, No 2nd Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David Turocy
AU 1762

ELENA TSO
PRIMARY EXAMINER
ETsoy